REMARKS

This paper is responsive to the final Office Action mailed July 13, 2005. Claims 11-32 are pending in the application. Applicant acknowledges with appreciation the allowance of Claims 21-32. Claims 11-20 stand rejected as being anticipated by Camiade et al. (US 5,305,469).

Applicant has carefully considered the comments provided in the Office Action and respectfully submits that the rejection of Claims 11-20 is in error. Camiade fails to anticipate the claimed subject matter.

Patentability of Claims 11-18

Claim 11 recites as follows:

> 11. A modulator circuit, comprising:
>
> a negative impedance amplifier operable for reflecting and amplifying a signal applied to the amplifier; and
>
> switching means for switching the amplifier between two reflecting states having impedances in the two reflecting states selected such that a phase of a reflected and amplified signal switches by substantially 180°.

Camiade describes a modem having a transistor 11 that operates in either one of two states: a vigil state or an active state. See, *e.g.*, col. 2, lines 45-53 of Camiade. In the vigil state, the transistor 11 does not reflect and amplify a signal applied to the transistor. See, *e.g.*, col. 4, lines 16-18. In the active state, the transistor 11 reflects and amplifies a signal, but it does so in a conventional manner. Camiade does not teach that the transistor 11 (amplifier) has two reflecting states, nor does Camiade suggest switching the transistor 11 between two reflecting

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states having impedances such that a phase of the reflected and amplified signal switches by substantially 180°.

While Camiade teaches an embodiment that modulates the phase of a signal, it does so in a conventional manner using a phase-shifter cell 39. See Figure 6 of Camiade. The phase-shifter cell 39 shifts the phase of a signal travelling between the antenna 9 and the transistor 11 by altering the path of the signal, depending on the state of the transistor 40. When the transistor 40 is active, the signal travels in a short circuit path through the transistor 40. When the transistor 40 is not active, the signal travels through a path defined by two inductors 41 and 42 connected at a midpoint to a capacitor 44, in effect providing a "longer" path for the signal to travel.

Notably, the phase-shifter cell 39 is separate from the transistor 11. See Col. 4, lines 30-35 of Camiade ("...a phase modulator, placed between the antenna and the amplifier...). The phase-shifter cell 39 modulates the phase of an incoming or outgoing signal without regard to the signal reflection provided by the transistor 11. Likewise, the signal reflection properties of the transistor 11 (when in the "active state") are unaffected by whichever path the phase-shifter cell 39 provides to a signal travelling between the antenna 9 and the transistor 11. In short, the circuitry disclosed by Camiade does not switch the amplifier (transistor 11) between two reflecting states having impedances in the two reflecting states selected such that the phase of a reflected and amplified signal switches by substantially 180°.

In contrast, the present application describes a circuit that generates a phase shift key modulation in a different manner. In one embodiment described in the specification for illustration purposes, a modulator circuit 2 includes a transistor 6 that operates as a negative impedance amplifier. The transistor 6 reflects and amplifies a signal that is re-radiated by an antenna 4. Matching networks 8, 10, 12 are connected to the respective gate, source, and drain

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of the transistor 6. See FIGURE 1 and the related discussion at page 4, lines 2-20 of the present application.

The magnitude of the negative impedance of the modulator circuit 2 is dependent on the drain/source current I_{ds} passing through the transistor 6. In this particular illustration, the current is determined by a switchable current source 14. The current source 14 is switchable between two selected currents I_{ds1} and I_{ds2} depending on the control circuit 16. See page 4, line 21 to page 5, line 3 of the present application.

The magnitude of the negative impedance that results when currents I_{ds1} and I_{ds2} are flowing through the transistor 6 are selected, in part, such that the phase of the signal that is reflected and amplified by the transistor 6 is switched by substantially 180°. The magnitude of the negative impedance can also be selected such that the circuit 2 has the same reflection gain for each of the currents I_{ds1} and I_{ds2}. See page 5, lines 5-17 of the present application.

Unlike the circuit in Camiade that relies on an external phase-shifter cell 39 to effect a phase modulation, the present application describes and claims an amplifier that internally is switched between two reflecting states to phase modulate the signal being reflected by the amplifier. Camiade fails to teach or suggest "switching means for switching the amplifier between two reflecting states having impedances in the two reflecting states selected such that a phase of a reflected and amplified signal switches by substantially 180°", as recited in Claim 11. Thus, the Office Action has not presented a *prima facie* case of anticipation, and accordingly the rejection of Claim 11 should be withdrawn.

Claims 12-18 depend from Claim 11 and hence are allowable for their dependence on an allowable base claim. Nevertheless, applicant further contends that Claims 12-18 are also allowable for the additional subject matter recited therein.

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For example, Claim 12 is directed to the modulator circuit according to Claim 11 in which the impedances in the two reflecting states are selected such that a reflection gain of the amplifier in the two reflecting states is substantially the same and such that the reflected and amplified signal is a binary phase shift keyed signal. This is not shown or taught by Camiade. The Office Action references Col. 4, lines 30-41 and the phase shifter 39 taught by Camiade, but the phase shifter 39 does not constitute or act as an amplifier.

As another example, Claim 13 is directed to the modulator circuit according to Claim 11 in which the impedances in the two reflecting states are selected such that a reflection gain of the amplifier in the two reflecting states is different, and wherein the impedances are selected such the reflected and amplified signal is a substantially single sideband signal. This too is not shown or taught by Camiade.

As yet another example, Claims 14 and 15 recite that the negative impedance amplifier comprises a transistor and a biasing means for biasing the transistor such as to act as the negative impedance amplifier, and that the switching means switches the biasing of the transistor to switch the transistor between the two reflecting states. Camiade does not teach or suggest switching the biasing of the transistor 11 to switch between two reflecting states.

Claims 11-18 should be allowed.

Patentability of Claim 19

Claim 19 recites as follows:

> 19. A de-modulator circuit for de-modulating a binary phase shift keyed signal, comprising:
>
> a modulator circuit including a negative impedance amplifier operable for reflecting and amplifying a signal applied to the amplifier; and

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switching means for switching the amplifier between two reflecting states having impedances in the two reflecting states selected such that a phase of a reflected and amplified signal switches by substantially 180°.

The de-modulator circuit recited in Claim 19 includes a modulator circuit having a negative impedance amplifier and switching means operable in a manner as described above with respect to Claim 11. Applicant submits that Camiade does not anticipate Claim 19 for the same reasons it does not anticipate Claim 11. Accordingly, Claim 19 should be allowed.

Patentability of Claim 20

Claim 20 recites as follows:

20. A transponder tag, comprising:

a modulator circuit including a negative impedance amplifier operable for reflecting and amplifying a signal applied to the amplifier; and

switching means for switching the amplifier between two reflecting states having impedances in the two reflecting states selected such that a phase of a reflected and amplified signal switches by substantially 180°.

The transponder tag recited in Claim 20 includes a modulator circuit having a negative impedance amplifier and switching means operable in a manner as described above with respect to Claim 11. Camiade does not anticipate Claim 20 for the same reasons it does not anticipate Claim 11. Accordingly, Claim 20 should be allowed.

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Amendment of the Specification

As a final matter, applicant requests entry of minor amendments to the specification to correct a typographical error and add commas to place the description in better form for publication as a patent. These amendments are not required for purposes of patentability and do not affect the scope of the claims in the application.

CONCLUSION

Applicant thanks the Examiner for the allowance of Claims 21-32. In view of the foregoing remarks, applicant submits that Claims 11-20 should also be allowed. Action to that end is requested. Should the Examiner identify any remaining issues needing resolution prior to allowance of the application, the Examiner is invited to contact applicant's attorney at the telephone number indicated below.

Respectfully submitted,

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